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THE IMPACT OF THE COVID-19 PANDEMIC ON THE MENTAL HEALTH OF NURSES IN HOSPITAL SETTINGS

O IMPACTO DA PANDEMIA POR COVID-19 NA SAÚDE MENTAL DOS ENFERMEIROS EM CONTEXTO HOSPITALAR

EL IMPACTO DE LA PANDEMIA DE COVID-19 EN LA SALUD MENTAL DE LAS ENFERMERAS EN UN CONTEXTO HOSPITALÁRIO

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ABSTRACT

Introduction: The pandemic of COVID-19 had a significant impact on the mental health of nurses working in hospital settings. These professionals, faced several psychological challenges, including stress, anxiety, burnout, depression, and symptoms of mental health disorders, since they were exposed to the risk of contracting the disease, as well as the emotional stress caused by caring for critically ill patients and dealing with death. In addition, many nurses dealt with the impact of fatigue, long working hours, and work overload, all of which contribute to increased stress and anxiety. Lack of adequate protective equipment and financial resources, as well as work overload, lack of emotional support and psychological resources also negatively influenced nurses' mental health.

Objective: To analyze the impact that the COVID-19 pandemic had on the anxiety of nurses working in a hospital setting.

Methodology: Integrative literature review that used the PICO mnemonic to compile the research question. We proceeded to search for articles on the EBSCOhost platform, selecting articles published between January 2010 and December 2022 in the MEDLINE complete and CINAHL complete databases. Six articles and one master's thesis were selected and followed the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses – PRISMA method.

Results: The pandemic of COVID-19 had a significant impact on nurses' anxiety in hospital settings. Exposure to the risk of contracting the disease, the emotional stress caused by caring for critically ill patients and dealing with death, and the lack of adequate protective equipment were factors that contributed to increasing nurses' anxiety. Variations in the impact of the pandemic on nurses' anxiety were also observed, depending on biological and sociodemographic variables such as age, gender, marital status, and level of prior stress. Years of service in the profession and level of job satisfaction were also predictors.

Conclusion: We highlighted the need to provide support and resources to nurses during the pandemic, to mitigate its impact on anxiety and mental health. It is important to consider biological and sociodemographic variables when planning support measures to meet the specific needs of each nurse.

Keywords: Anxiety; Coronavirus; Hospital; Mental Health; Nurses; Work.

RESUMO

Introdução: A pandemia de COVID-19 teve um impacto significativo na saúde mental dos enfermeiros que trabalham em contexto hospitalar. Estes profissionais, enfrentaram uma série de desafios psicológicos, incluindo stress, ansiedade, burnout, depressão e sintomas de transtornos de saúde mental, pelo fato de estarem expostos ao risco de contrair a doença, bem como ao *stress* emocional causado por cuidar de pacientes graves e lidar com a morte. Além disso, muitos enfermeiros confrontaram-se com o impacto da fadiga, do horário de trabalho prolongado e da sobrecarga de trabalho, o que contribuiu para o aumento do stress e da ansiedade. A falta de equipamento de proteção adequado e recursos financeiros, bem como a sobrecarga de trabalho, a falta de suporte emocional e de recursos psicológicos também influenciaram negativamente a saúde mental dos enfermeiros.

Objetivo: Analisar o impacto que a pandemia de COVID-19 teve na ansiedade dos enfermeiros trabalhando em contexto hospitalar.

Metodologia: Revisão integrativa da literatura que utilizou a mnemónica PICO para compilar a pergunta de investigação. Procedeu-se à pesquisa de artigos na plataforma EBSCOhost, selecionando-se artigos publicados entre janeiro de 2010 e dezembro de 2022 nas bases de dados MEDLINE complete e CINAHL complete. Foram selecionados seis artigos e seguiram-se as recomendações do método *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* – PRISMA.

Resultados: A pandemia de COVID-19 teve um impacto significativo na ansiedade dos enfermeiros em contexto hospitalar. A exposição ao risco de contrair a doença, o *stress* emocional causado por cuidar de doentes graves e lidar com a morte, bem como a falta de equipamento de proteção adequado, foram fatores que contribuíram para aumentar a ansiedade dos enfermeiros. Foram também observadas variações no impacto da pandemia na ansiedade dos enfermeiros, dependendo de variáveis biológicas e sociodemográficas, como idade, género, estado civil e nível de stress prévio. Os anos de serviço na profissão e o nível de satisfação com o trabalho foram também fatores preditores.

Conclusão: Destacou-se a necessidade de se fornecer suporte e recursos aos enfermeiros durante a pandemia, a fim de mitigar seu impacto na ansiedade e na saúde mental. É importante considerar as variáveis biológicas e sociodemográficas ao planear medidas de apoio, a fim de atender às necessidades específicas de cada enfermeiro.

Palavras-chave: Ansiedade; Coronavírus; Enfermeiros; Hospital; Saúde mental; Trabalho.

RESUMEN

Introducción: La pandemia de COVID-19 tuvo un impacto significativo en la salud mental de las enfermeras que trabajan en entornos hospitalarios. Estos profesionales, se enfrentaron a una serie de retos psicológicos, como estrés, ansiedad, agotamiento, depresión y síntomas de trastornos mentales, debido a que estaban expuestos al riesgo de contraer la enfermedad, así como al estrés emocional causado por el cuidado de pacientes en estado crítico y el hecho de enfrentarse a la muerte. Además, muchas enfermeras se enfrentaron al impacto de la fatiga, las largas jornadas laborales y la sobrecarga de trabajo, que contribuyen a aumentar el estrés y la ansiedad. La falta de equipos de protección adecuados y de recursos financieros, así como la sobrecarga de trabajo, la falta de apoyo emocional y de recursos psicológicos también influyeron negativamente en la salud mental de las enfermeras.

Objetivo: Analizar el impacto que tuvo la pandemia de COVID-19 en la ansiedad de las enfermeras que trabajan en entornos hospitalarios.

Metodología: Revisión bibliográfica integradora utilizando la mnemotecnia PICO para elaborar la pregunta de investigación. Se procedió a la búsqueda de artículos en la plataforma EBSCOhost, seleccionando los artículos publicados entre enero de 2010 y diciembre de 2022 en las bases de datos MEDLINE complete y CINAHL complete. Se seleccionaron seis artículos y una tesis de máster y se siguieron las recomendaciones del método PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*).

Resultados: La pandemia de COVID-19 tuvo un impacto significativo en la ansiedad de las enfermeras en el ámbito hospitalario. La exposición al riesgo de contraer la enfermedad, el estrés emocional causado por atender a pacientes en estado crítico y enfrentarse a la muerte, y la falta de equipos de protección adecuados fueron factores que contribuyeron a aumentar la ansiedad de las enfermeras. También se observaron variaciones en el impacto de la pandemia sobre la ansiedad de las enfermeras, en función de variables biológicas y sociodemográficas, como la edad, el sexo, el estado civil y el nivel de estrés previo. Los años de servicio en la profesión y el nivel de satisfacción laboral también fueron predictores.

Conclusión: Se destacó la necesidad de proporcionar apoyo y recursos a las enfermeras durante la pandemia para mitigar su impacto en la ansiedad y la salud mental. Es importante tener en cuenta las variables biológicas y sociodemográficas a la hora de planificar las medidas de apoyo para satisfacer las necesidades específicas de cada enfermera.

Descriptores: Ansiedad; Coronavirus; Enfermeras; Hospital; Salud mental; Trabajo.

INTRODUCTION

The new coronavirus, SARS-CoV-2, was first identified in the city of Wuhan, China, in late 2019. In January 2020, health officials in China confirmed the presence of the virus and reported cases of an acute respiratory illness, later known as COVID-19. Since then, the pandemic has spread worldwide, affecting millions of people and causing significant economic, social and political impacts[1].

On March 11, 2020, the WHO declared COVID-19 a pandemic, recognizing its global geographic distribution. The COVID-19 pandemic has been an unprecedented public health crisis, with millions of confirmed cases and deaths worldwide. As of October 14, 2022, there have been 629,085,661 confirmed cases of SARS-CoV-2 and 6,568,749 deaths recorded worldwide[2]. However, it is important to note that the actual number of cases and deaths may be much higher, as many mild cases may not have been recorded and many deaths may have been related to the virus even without a confirmed diagnosis. Health authorities have continued to work to control the spread of the virus by supporting those affected and developing effective treatments and vaccines to combat COVID-19.

In Portugal, a state of emergency was decreed for the first time in history on March 18, 2020, as a measure to contain the spread of the COVID-19 virus. The first cases of infection were confirmed on March 2, 2020 by the Directorate General of Health. Since then, Portugal has implemented measures to control the spread of the virus, including lockdown, closure of schools and commerce, travel restrictions, and the mandatory wearing of masks in public places[3]. As of October 14, 2022, in Portugal, 5,508,231 confirmed cases of COVID-19 and 25,119 deaths have been recorded. Portugal, was ranked 23rd worldwide for new daily cases, and 9th in Europe[2]. By the end of January 2022, a peak of 69,155 new cases was reached in Portugal[2]. These high numbers led almost to the collapse of the National Health Service[4] which worked hard to cope with the high number of cases, leading to an excessive demand for health services, overloading the NHS. This also resulted in an overburdening of health professionals, including nurses who worked tirelessly to care for patients and contain the spread of the disease. However, the high number of cases and the depletion of resources meant that many health professionals had to deal with very stressful and challenging conditions.

The nurse is responsible for applying scientific and technical knowledge, and for using human, material and technological resources to provide nursing care, aiming at the promotion, protection and recovery of health of individuals and collectivities. In addition, nurses are also responsible for ensuring the continuity of care, for monitoring and evaluating the

patients' response to the care provided, and for collaborating with other health professionals in the provision of interdisciplinary care[5].

Nurses, taking into consideration the reasons mentioned above, were one of the professional groups most affected by the pandemic of COVID-19, as they faced stressful and challenging situations for days on end, working with a high number of patients as well as redoubled safety precautions necessary to protect themselves and patients from infection by the virus. In addition, many nurses worked overtime and extended shifts, which may have led to burnout and emotional stress. These conditions may have contributed to anxiety and the development of burnout syndrome in these professionals, often without adequate support and resources to help them cope with these difficult conditions, from organizations and health authorities[6]. Added to all this was the factor of uncertainty about the future, concern about the health of their families and the emotional overload which also had an important impact on the mental health of these professionals.

Anxiety is a psychological state of its own, intrinsic to all people, of varying intensity. It functions as a warning signal and is the result of a normal reaction to something specific that the person perceives as threatening. The intensity of anxiety, duration, interference, and frequency with which it occurs distinguish the normal state from the pathological one. It is often associated with states of vigilance that the person adopts in an attempt to prepare for future danger, also accompanied by caution and/or avoidance behaviors. It translates a complex set of emotions with fear being the dominant emotion[7]. If not treated appropriately, it can have long-term, negative effects on nurses' health and well-being, including decreased job satisfaction and compromised quality of life. In addition, it can lead to physical and emotional symptoms, such as headaches, insomnia, mood swings and memory problems, and a state of exhaustion[6].

With this study, the authors aim to investigate how the pandemic affected the mental health and well-being of nurses in hospital settings, including anxiety, and how this may have impacted their job performance. Furthermore, this review may provide valuable information for developing support strategies and interventions to help nurses cope with stress and anxiety related to a pandemic or other crisis situation.

Objective

To analyze how the pandemic affected the mental health and well-being of nurses in hospital settings, including anxiety.

METHODS

Ethical aspects

The Ethics Committee was not asked for an opinion, as this was a secondary research study. When formulating the problem, the principles of clarity, objectivity and accuracy were carefully followed. The research path was designed so that the results obtained would be relevant for nursing interventions and/or care practice. The data obtained in the selected studies were analyzed so as to respect the results collected in these investigations. Author referencing was documented according to the standards of good academic and scientific practices.

Study type

The choice of an integrative literature review aimed to access current knowledge about the problem under study and thus contribute to the incorporation of the results of this study in practical settings. The methodological procedures used involved the following steps: 1) identification of the initial question; 2) definition of the inclusion and exclusion criteria of the studies; 3) definition of the information to be extracted from the studies; 4) analysis of the included articles; 5) presentation and discussion of the results; and 6) synthesis of the knowledge[8].

Methodological procedures

As a methodological approach, the following steps were used to conduct this integrative literature review: defining the study's research question; defining exclusion and inclusion criteria; entering descriptors in the databases; identifying studies in the databases; selecting studies after reading their titles and abstracts; thoroughly evaluating the selected articles; and analyzing the collected data.

In order to achieve the proposed objective, a research question was defined by applying the PI(C)O methodology, which is intended to be answered in this integrative literature review, in which "P" corresponds to population, "I" is intervention, "C" refers to comparison/control, and "O" is outcomes:

- **P (Population):** Nurses working in hospitals during the COVID-19 pandemic.
- **I (Intervention):** Impact of the pandemic of COVID-19.
- **C (Comparison/Control):** It is not applicable in this study as there is no specific comparison group or intervention.
- **O (Outcomes):** Was the impact of the COVID-19 pandemic significant for the emergence of anxiety in nurses working in hospitals?

The question outlined was as follows: In nurses working in hospital settings, was the impact of the pandemic by COVID-19 significant for the emergence of anxiety?

With the PICO question elaborated, a data collection on the subject under study was carried out during the month of October 2022 through the EBSCOhost platform, later selecting the MEDLINE complete and CINAHL complete databases.

Specific descriptors were used, which were connected with the Boolean operators "AND" and "OR" in the following arrangement and order:

"Nurses" OR "Nursing staff" OR "Nurse" AND "Anxiety" OR "Anxiety disorders" AND "Covid-19" OR "Coronavirus" OR "2019-ncov" OR "Sars-cov-2" OR "Cov-19" AND "Hospital" AND "Hospital workplace" OR "Mental health".

In order to instill boundaries in the research carried out, the following inclusion criteria were chosen: time frame of January 2020 to December 2022, presented in full text in both English and Portuguese languages, which sought to answer the aforementioned research question.

To select the articles, the title and abstract of the articles were first read to check for concordance in the inclusion and/or exclusion according to the previously defined criteria. If the title and abstract revealed interest or if they were not conclusive, the entire document was read to minimize the loss of precious information for the study. If the article revealed interest, it was included in this study.

Duplicate results obtained with the search were excluded, as well as those that had the descriptors in the title, that in terms of context did not correlate with the object of study, and studies with ambiguous methodology were also excluded. The exclusion criteria defined were studies prior to 2020 that did not include nurses at the time of COVID-19 and lack of relevant content.

118 articles were selected in the initial search. After reading titles and keywords and removing duplicates, 6 full-text articles eligible for inclusion criteria were selected. Figure 1↗ shows how these results were arrived at using a PRISMA flowchart.

RESULTS

In order to meet the proposed objectives, several articles were read and their content was analyzed. The characteristics and main results obtained are summarized in Table 1↗, in ascending chronological order of publication.

DISCUSSION

Through the identification of the main results obtained in the six articles included in this literature review, it was possible to understand that all the results of the studies converge on the fact that the pandemic had an impact on mental health and caused an increase in anxiety in nurses working in hospital settings.

It was also found that social isolation, exalted by the fear of infecting family and friends, as well as the feeling of responsibility to prevent the spread of the virus, led to major lifestyle changes and consequently affected the physical and mental health of these professionals. The restrictions imposed resulted in decreased physical contact and staying in more enclosed and lonely environments for fear of infection, which also explains the increased levels of anxiety. It is known that family members and close friends are the nurses' main source of emotional support, but when caring for sick people, these professionals moved significantly away from this nucleus of support[9]. This lack of support, again, had a negative impact on anxiety management.

Fear of contracting the disease was also a promoter of anxiety development. The authors are unanimous that the fear of contracting the disease contributed to the increase of this symptomatology, observed in the studies as strongly related to the possibility of spreading the disease to people who live with the nurses, whether they are patients, colleagues, relatives and friends[10]. Most studies found that the increased anxiety rate was also due initially, to the unknown origin of SARS-CoV-2, as well as the lack of clear and precise information about the spreading mechanism, virulence, etc., which contributed to the increased uncertainty and feeling of lack of control.

Another interesting result was the existence of a significant relationship between the variable gender and anxiety. In this sense, women showed a higher level of anxiety compared to men. This relationship is widely known and corroborates the data of the American Psychiatric Association (2014)[9], which elucidate that, in general, and with regard to gender, anxiety is more frequent in females than in males, at a ratio of 2:1. A possible expla-

nation for the existence of a relationship between anxiety during the pandemic and the female gender may have been due to the fact that women often take on greater responsibilities in caring for the family and the home, which may increase their fear of transmitting the infection to family members and, consequently, increase their anxiety. However, it is important to note that most of the survey participants were women, which may limit the generalizability of the results to both genders.

With regard to the variable age group, no statistically significant differences were found between anxiety and age group. If, on the one hand, it was found that those with higher levels of anxiety tended to be older[9], on the other hand, it was also found that younger nurses were more likely to develop high levels of anxiety[11]. Regarding the variable having children, women with children were found to have higher anxiety levels compared to women without children, possibly due to the fact that nurses with children need to deal with the dual responsibility of caring for the family and facing the risk of exposure to the virus in their work, which may increase the level of stress and anxiety[12,13].

The additional challenges related to the pandemic, such as having their children's school closed, lack of childcare, and balancing work with home education, may have contributed to an increase in anxiety for these health care workers.

We found an agreement between the authors of the analyzed articles about the need to implement mental health promotion programs for nurses[11], namely counseling and psychotherapy practices, recruitment of more nurses, spiritual support measures, financial compensation, support from supervisors, adequate supply of material, and procedures with clear and concise instructions on how to act before COVID-19. It is important that effective strategies to promote the mental health of health care workers are considered and implemented. This can not only improve their well-being, but also contribute to quality health care.

Study limitations

The limitations of this Integrative Literature Review are essentially due to the fact that the selection of articles was only in Portuguese and English, which may have limited the scope of the results obtained and, consequently, led to a loss of significant information from other potentially important international investigations written in other languages. It is essential to emphasize that the Integrative Literature Review is a methodology that allows obtaining an overview of the studies already conducted on a given theme, but does not guarantee the total comprehensiveness of all available information. Therefore, it is necessary to continue to research and update knowledge on the subject to ensure a complete and up-to-date approach.

Contributions to Nursing

A review of the literature on nurses' anxiety in a hospital setting during the pandemic can make several contributions to the nursing profession. Some of these contributions include:

- Understanding the magnitude of the problem: can help understand the impact of the pandemic on nurses' anxiety in a hospital setting.
- Identifying risk factors: It may be possible to identify risk factors that lead to anxiety in nurses, helping to develop strategies to prevent this problem.
- Defining intervention strategies: identify effective intervention strategies to help nurses cope with pandemic-related anxiety.
- Raising awareness of the importance of nurses' psychological care: helping to raise awareness of the importance of nurses' psychological care and investing in it during and after the pandemic.
- Defining guidelines for nurses' mental health: can serve as a basis for defining guidelines for nurses' mental health and for implementing policies to support these professionals.

FINAL CONSIDERATIONS

The conclusion of this literature review on nurses' anxiety in hospital settings during the pandemic highlighted the importance of addressing this topic in order to understand the impact that the pandemic had on nurses' mental health and, consequently, on their ability to perform their duties effectively and safely. The results obtained from the analysis of the studies and the existing literature also indicate that there was an effective lack of support and resources for nurses, which contributed to the impact on the anxiety and mental health of these professionals. It highlighted the importance of considering in future studies, the biological and sociodemographic variables in planning support measures in order to address the specific needs of each nurse. This study contributes to the understanding of the impact of the pandemic by COVID-19 on nurses in hospital settings and may be useful to inform policies and practices of support and support for nurses in situations of this dimension. Of further note is the importance of the need to conduct further research at a future level, on the impact of the pandemic on nurses' mental health and on more appropriate strategies to support them.

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MC: Study design, data analysis, review and discussion of results.
RT: Study design, data analysis, review and discussion of results.
MG: Study coordination, study design, data collection, storage and analysis, review and discussion of results.
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AC: Review and discussion of results.
AD: Review and discussion of results.
LL: Review and discussion of results.
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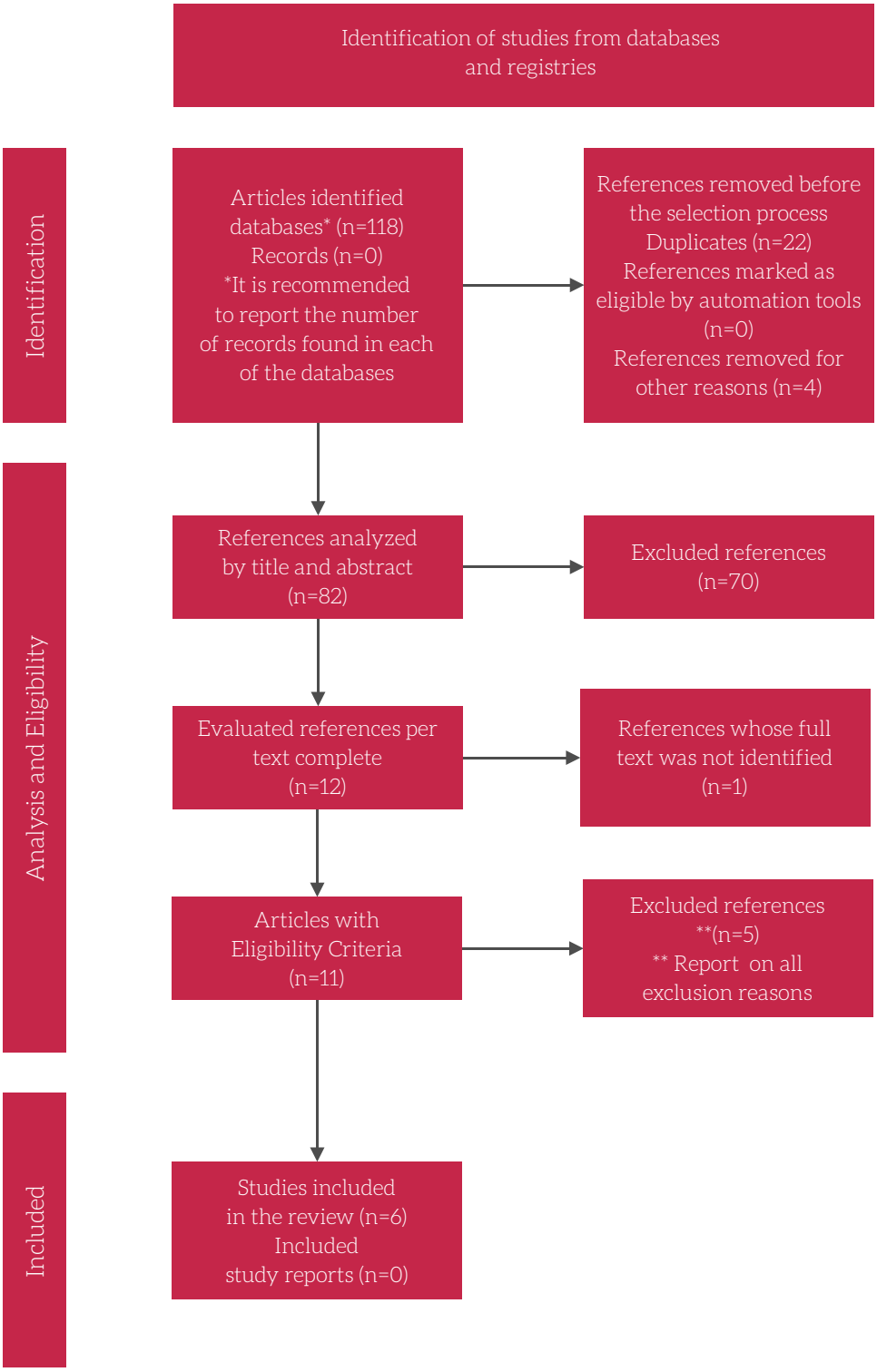


Figure 1 – 2020 PRISMA diagram for the presentation of the research methodology.

Chart 1 – Identification of the studies and main results.

Authors/Year/Method	Objectives	Results
Han, L; Wong, F K Y; Ela, D L M; Li, S Y; Yang, Y F; Jiang, M Y; Ruan, Y; Su, Q; Ma, Y; Chung, L Y F (September, 2020)[11]. Cross-Sectional Study. (*Estudo transversal*).	To investigate the anxiety levels of frontline clinical nurses working in 14 hospitals in Gansu province, China, during this period.	Of 22,034 nurses who were employed in 14 hospitals in Gansu, located in northwestern China, the mean age of the respondents was 31.89 years and the mean length of service was 9.40 years. Most of the respondents were female (98.6%), married (73.1%), and had a nursing degree (51.9%). The anxiety levels of the respondents were considered normal (79.4%), mild (15.9%), moderate (3.9%) or severe (0.8%). Gender, age, marital status, need to care for children, need to care for elderly family members, working in a designated hospital, working in an area with exposure to COVID-19, and caring for a confirmed or suspected COVID-19 carrier were significantly associated with the development of anxiety. A quarter of respondents (24.5%) felt they had excellent knowledge about COVID-19 and 68.6% of respondents wanted to know more about the disease. The top three concerns expressed were passing the disease on to family and friends, not having enough protective equipment, and contracting the disease themselves. Knowledge of the disease, the desire for related knowledge, and the possibility of oneself or others contracting the disease were significantly associated with anxiety. Actively limiting social interactions, avoiding interaction with family and friends, taking leave from work because of concerns about COVID-19, and shirking responsibilities during the COVID-19 outbreak were significantly associated with anxiety. Female nurses who were married and had family burdens of caring for the elderly and young were more anxious. On the one hand, younger nurses tended to have less clinical experience and worry about how to deal with newly emerging infectious diseases. On the other hand, women traditionally assume the role of caregiver in families. Nurses tended to isolate themselves during the outbreak, which is an appropriate public health protection measure, but at the same time they need the support of family and friends. Different measures can be implemented to combat this mental health problem.

Chart 1 – Identification of the studies and main results.↩↖

Authors/Year/Method	Objectives	Results
Zheng, R; Zhou, Y; Fu, Y; Xiang, Q; Cheng, F; Chen, H; Xu, H; Fu, L; Wu, X; Feng, M; Ye, L; Tian, Y; Deng, R; Liu, S; Jiang, Y; Yu, C & Li, J (February, 2021)[12]. Cross-Sectional Study (*Estudo transversal*).	To determine the effect of COVID-19 on nurses' mental health and the prevalence of anxiety symptoms among nurses in China and during the outbreak.	A total of 3,228 nurses in Sichuan province and Wuhan city were selected by convenience sampling. The majority of the study population were women, accounting for 96.7% of the total, and 89.5% of them were aged 39 years old. The total prevalence of anxiety among nurses was 18.1% and the anxiety rate in nurses who cared for COVID-19 patients was 28.4%. The workplace, unknown origin of the virus, and fear of infection were associated with anxiety symptoms. Nurses with a high level of exposure to COVID-19 were more likely to have anxiety symptoms. Psychological and social factors are linked to work-related stress, and these factors strongly affect nurses' health and the quality of patient care, so nurses with COVID-19-related stress and low quality of family relationships were more likely to develop anxious symptoms. Nurses experiencing COVID-19-related stress and poor quality of relationship with family members were more likely to develop anxiety. Also, concern about becoming infected through asymptomatic transmission, inadequate provision of PPE, and stigmatization were associated with high levels of anxiety. Health status was related to age and gender, even younger frontline nurses tended to be more concerned about personal or family health. Therefore, this population should receive more social support to reduce the severity of symptoms. In this sense, through all the aspects inherent to the perceived anxiety, it is necessary to implement mental health production programs focused on job security and family support to improve nurses' well-being.

Chart 1 – Identification of the studies and main results.[↔↖]

Authors/Year/Method	Objectives	Results
Simonetti, V; Durante, A; Ambrosca, R; Arcadi, P; Graziano, G; Pucciarelli, G; Simeone, S; Vellone, E; Alvaro, R & Cicolini, G (May, 2021)[13]. Cross-Sectional Study (*Estudo transversal*).	To assess the prevalence of anxiety and its factors among nurses facing COVID-19.	A total of 1,005 nurses employed in different wards of Italian hospitals during the COVID-19 pandemic were selected to perform the study. Most of the participants were female (65.97%). The results showed alarming rates of moderate anxiety (33.23%). Gender was an independent predictive factor for anxiety. Being female was associated with higher levels of anxiety. This finding is consistent with studies showing that in the general population, the prevalence of anxiety disorders in women is approximately twice as high as in men. The variables considered in the models were: gender, age, marital status, area of practice, level of education, years of professional experience, post-matriculation courses, number of children, relocation, and nursing role. Practice area, female gender, clinical role, and number of children were associated with levels of severe anxiety. Psychosocial constraints (e.g., stress) have been discussed as possible causes for the higher rates of anxiety in women. In this health care setting, anxiety symptoms may stem from fear of contracting the virus, stress at work, direct exposure to caring for the patient who tested positive for COVID-19, negative feelings, lack of social support, or fear of infecting their children. Due to the high rate of anxiety, specific interventions should be implemented to prevent exacerbation of these symptoms.

Chart 1 – Identification of the studies and main results.[↔↖]

Authors/Year/Method	Objectives	Results
Park, S; Lee, Y; Kim, T; & Jung, S J (October, 2021)[10]. Cross-Sectional Study (*Estudo transversal*).	To assess the relationship between anxiety and shift work in healthcare workers during the COVID-19 pandemic.	Of a total of 381 participants, 83% were female. Of the healthcare professionals surveyed, 122 (32%) suffered from anxiety. Factors that were significantly associated with anxiety included age, marital status, previous work experience, chronic illness, and shift work before/after the outbreak. Compared to those without anxiety, professionals with anxiety symptoms were more likely to be older, married, have longer work experience, and have a chronic illness. Among those with anxiety, 45.9% worked shifts before the COVID-19 outbreak and 60.33% after the outbreak. Dealing with angry or unpleasant users, hiding emotions while working, and discomfort from wearing protective gear among women were significantly associated with anxiety. In this study, subgroup analysis of nurses or nursing assistants, who are the primary workforce for COVID-19 treatment and triage, resulted in a significant increase in anxiety. Nurses play a crucial role in public health and infection prevention. In addition, the user-facing nature of their work may increase the likelihood of exposure to COVID-19 and contribute to a higher risk of infection. Therefore, they are more vulnerable to anxiety than other healthcare professions, such as physicians. In addition, after the outbreak, some healthcare professionals worked under unfamiliar conditions, such as shift work or long work periods, interrupting family and social relationships and reducing the opportunity for rest breaks and days off, which can lead to anxiety. Women are vulnerable to anxious symptoms because they have the role of caring for the home and are more fearful of transmitting the infection to their family members.

Chart 1 – Identification of the studies and main results.↔↖

Authors/Year/Method	Objectives	Results
Burstyn, I; & Holt, K (April, 2022)[15]. Cross-Sectional Study (*Estudo transversal*).	Identify workplace-related factors that put nurses and physicians at risk for anxiety and depression during the first wave of the COVID-19 pandemic.	Online surveys were administered to nurses and physicians hired during the first wave of COVID-19 in two health systems in the United States. Responses were obtained from 684 nurses and 185 physicians. The Hospital Anxiety and Depression Scale (HADS) was used to measure anxiety and depression levels in these professionals. The authors found that nurses who did not feel well for 2 consecutive days after the pandemic started or who believed they were infected had higher levels of anxiety. Additionally, knowledge of any contact with a patient infected with SARS-CoV-2 was associated with a 20% higher level of anxiety. The authors also found that the greatest concern for the professionals surveyed centered on the risk of infecting their family members, followed by the risk of becoming infected themselves. On the contrary, the factors that contributed to reducing anxiety levels were related to the existence of enough human resources to provide safe care, as well as having access to personal protective equipment and knowing how to use it correctly. Overall, it was possible to verify that about $^{1}/_{3}$ (~33.3%) of nurses and physicians showed symptoms of anxiety and depression, which, according to the authors, is congruent with the results obtained in another study conducted in 2020 in the United States of America. The authors emphasize that the values obtained in their study are clearly above the values established as normal in the UK (regarding the HADS scale). However, the use of this scale is one of the limitations of the study, as it makes comparison with other studies using different scales difficult. Additionally, factors such as working conditions and mood disorders (insomnia or substance use) were not considered in the analysis. Another limitation to consider are the differences between health systems that were not captured, such as the organization itself and the state response to the pandemic.

Chart 1 – Identification of the studies and main results.

Authors/Year/Method	Objectives	Results
Rezq, K A & Daoud, K A (June, 2022)[14]. Cross-Sectional Study (*Estudo transversal*).	To assess the psychological well-being of nurses during the outbreak of COVID-19 and the factors associated with it.	Out of a total number of 219 respondents from government hospitals and primary health centers in Tabuk City, Saudi Arabia. The majority of respondents were female (84.9%), had a nursing degree (61.2%), and were single (50.7%). Dependent variable: anxiety/independent variables: gender, marital status, education, living with children, years of experience, working hours, working with COVID-19 cases, and general health status. The prevalence of anxiety among nurses was 61.2%. Almost a quarter of the nurses (24.7%) reported extremely severe anxiety symptoms compared to 10.5% who reported severe anxiety symptoms. However, mild to moderate levels of anxiety were reported by 26.0% of nurses. The higher prevalence of anxiety among nurses may be related to the fact that most of these professionals were female, married, residing with their children, more than one-third of them worked more than 8 hours a day, and more than two-thirds of the sample studied had direct contact with cases of COVID-19. The most significant risk factors for anxiety in the sample studied were marital status, direct contact with COVID-19 cases, and general health status.